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AUTHOR Scatena, Paul
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ABSTRACT

The computational problem-solving mode of thought that has become widespread since the computer revolution has two aspects. The first aspect is the organization of one's view of the world into "context-free" terms and uniform relations between these terms. The relations that are to hold among these terms are taken to be standardized, and in this way inquiry is reduced to a technical problem of collecting context-free terms and analyzing the rules relating to them. Such an approach can yield mixed results. The second aspect is a tendency to look for unique solutions. To look at the world in this way may work in the hard sciences, but in the social sciences and the humanities, looking for a unique solution will often yield no solution at all. What is necessary is to stop looking for solutions and start seeing how different choices lead to different results, and then to make appropriate choices for each individual. Some of the techniques of analytic philosophy are useful tools as a way to integrate such thinking into a wider context of thought that includes intuition, insight, and human choices. (JK)

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Paul Scatena
Department of Philosophy
University of Rochester
Rochester, New York 14627

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The Humanties and the Primrose P. C.

The computer revolution has brought about many changes in the way we think about the world. The adoption of computer terminology coupled with the remarkable success of computers in science has led to a widespread orientation of inquiry into the format of problems capable of computer solution. We have come to look at life as a series of technical problems which we must solve. This approach has certain constraints that should be recognized. I will outline some of the implications of this revolution in thought, and hope to show that the effects of this orientation are especially counterproductive in the humanities.

The imprint of the computational problem-solving mode of thought has two aspects we should examine. The first was suggested by M.I.T. computer scientist Joseph Weizenbaum in his book Computer Power and Human Reason. This is the tendency to try to organize one's view of the world into groups of discreet facts, using terms that are "context-free," which means that they are taken to have fixed meanings accross cultures and throughout time. Similarly, the relationships that are to hold among these terms are taken to be standardized. In this way inquiry is reduced to a technical problem of collecting context-free terms and analyzing the rules relating them.

This orientation has been fruitful in science, but philosophers have long noted dangers inherent in it. As John Dewey wrote about half a century ago:

> "Preoccupation with elementary units is marked in logic, biology, and psychology, as in physics and chemistry. . . .Serious objection holds when the instrumental character of the elements is forgotten; and they are treated as independent, ultimate; when they are treated as metaphysical finalities, insoluble epistemological problems result."

Weizenbaum does take "serious objection" to neglecting the "instrumental character" of this kind of thought, and he believe that the widespread infusion of computers and computer styles of thought have brought about what he calls "the imperialism of instrumental reason."

Let's look at an example where such reasoning can hinder understanding. William Shakespeare's marriage license was dated November 28, 1582, and so his marriage took place around the very end of November. His first child, Susanna, was born in May of 1583. As I count on my fingers, that's six months, and so we can make judgments on Shakespeare's moral character, can't we?

No, we can't. In the summer of 1582 Shakespeare and his wife were formally betrothed. This "pre-contract" was legally binding upon them, and relations between the two of them were within socially accepted limits. As Shakesperean scholar Edward Dowden put it, "the words 'wedded wife' were at this time in no way tautological; a woman duly espoused might be a wife though the priestly benediction of wedlock had not yet been bestowed."

The initial use of the word "marriage" above, understood by today's usage, could lead to an erroneous judgment about Shakespeare's life. But the example runs deeper. It might seem that what is needed for these kinds of cases is a little translation guide, perhaps in the form of brief footnotes added by an editor to acquaint the reader with the usage. A book on Shakespeare's life might say he was

married in the summer of 1582, although the religious ceremony wasn't performed until November.

Such a step is in the right direction, but just barely. To do this is to keep using the framework of context-free terms and relations, and to assume that only the attached labels need to be changed. This will prevent us from looking at what marriage amounted to in Shakspeare's day, and so coming to better understand the culture in which he lived. This understanding of others is one thing we mean to get from our studies of the humanities.

But there is a more important goal: to learn about our own lives. When we consider the Shakspeare example and also think about other societies where marriage is structured differently, such as polygamous cultures, we can start to think about marriage and what it means to us. We are invited to look at the values in these other cultures and in our own. Looking at other lives, both actual and fictional, should help us hold our own up to the light, but this will not happen if the language of inquiry attempts to pigeonhole cases into what a computer scientist would call a data structure, which can accept only fixed meanings.

So far I've talked about variations of meaning over time and in different cultures, but these matters are as important closer to home. Perhaps even more so: we can learn about what it is to be human from looking at disparate cultures, but the world closest to ours is of course our own. Seeing others in situations similar to ours who react differently can also shed light on our world.

The example of marriage has also shown that the problem is more than just the need for some kind of term translation; the difficulties with the computer style of thought also lie in the relationships believed to hold among terms. Science functions by collecting laws relating terms and by testing these laws by controlling

some of the variables and observing the changes in the others. Does this approach work when people and not elements or electrons are the objects of study?

The issue at hand would not be so serious if the answer were simply no. Actual computer modeling of social structures is quite possible and can be said to work . . .well, sort of.

Consider a case discussed by Hubert and Stuart Dreyfus in their recent book "Mind over Machine." A program was written by a Stanford anthropologist that simulated customs of marriage and land inheritance in Himalayan societies. The model allowed a user to vary marriage customs from a man having several wives, to monogamy, to one wife having several husbands; and the program would identify the resulting redistrbution of land over several generations.

If anthropology and sociology are to be sciences such simulations can have their purposes, but the ability to produce such correlations should not mislead us into thinking this is all we should study. As the Dreyfus's say:

> "The attraction of simulations could lead disciplines outside the sciences to stress their formal, analystic side at the expense of subdisciplines based on informal, intuitive understanding. The social sciences . . . have both formal and informal aspects, and the existence of the computer as simulator may reinforce the tendency of the social sciences to imitate the natural sciences even when it is not appropriate. [pp. 126 - 27]"

This, they go on to say, can lead the student to "focus on the particular assumed relationships between variables made precise and explicit in a simulation and overlook the real relationships stated more vaguely in a qualitative, historical treatment of a subject."

This is why I said such techniques only "sort of" work. They <u>do</u> give results, often impressive ones because of the ability to run large numbers of cases

and produce impressive tables of precise figures. But these results come from stressing certain variables and neglecting others, and the terms to be controlled and the laws to relate them are often selected not by intuitive insight into social structures, but by looking for easily quantifiable terms and relations that can be placed in a model.

The Dreyfus brothers are stressing applications in which the objects of study and the relations between them are put in terms of mathematically-quantifiable formal systems, but their general conclusions relate as well to the humanities, where such formal modeling is not as useful. This is what I call the danger of the "Primrose P. C." The computer can lead us down a "primrose path." where we study not what we've decided is important, but what is computable. In this way, we make what is computable what is important.

The ability to "crunch numbers" from large data bases can lead us to place too much weight on the results such techniques can generate, even those that purport to represent deeply human elements of our lives. In a foreward to a book titled The Rise of the Computer State Walter Cronkite fell into this trap:

> "The computer files at the Internal Revenue Service, the Census Bureau, the Social Security Administration, the various security agencies such as the Federal Bureau of Investigation and our own insurance companies know everything there is to know about our economic, social and marital status, even down to our past illnesses and the state of our health."

Does Cronkite really think "everything there is to know" about our economic, social, and marital positions are representable in terms of computer data structures? Social position and marital status are not sets of data structure slots which, when filled, tell the tale. To regard them thusly is, first, to force people's

lives into context-free term descriptions, and, second, to take the relations, including the values, that hold among members of a society to be fixed.

To organize our thinking about social relationships in various cultures in a rigid way can yield mixed results. Sometimes such an approach is fruitful. Nietzsche once observed that very few philosophers have been married. That generalization may be offer a starting point for a useful study even though it neglects differences in marriage customs. Something may be true there that would get lost in overly fine distinctions about marriage customs in different societies.

This approach falls short in other applications, however. The most important of these is in the way this approach handles the values of the different groups being looked at. The Stanford progam I mentioned earlier could model a society with marriages consisting of, for example, one husband having several wives. In doing so, however, the terms "marriage," "husband," and "wife" are being removed from the values with which we understand them. A society in which I have two wives is, I would say, one in which I have no wife at all, for monogamy is a deeply entrenched value of the what institution of marriage means to me.

This is the first aspect of the problem-orientation of the computer: the organization of our view of the world into context-free terms and uniform relations between these terms. The second aspect follows naturally from the first: a tendency to look for unique solutions. If the standardized terms are related by standardized relations, then it stands to reason that the solutions to problems would also come out in a uniform way. To do look at the world in this way is to ignore real differences among people. This may work in the hard sciences, but in the social sciences and the humanities looking for a unique solution will often yield no solution at all.

Weizenbaum discusses the example of social conflicts on various American campuses during the 'sixties:

> "[O]ne could often hear well-meaning speakers say that the unrest . . . was mainly caused by inadequate communication among the university's various constituencies, e.g., faculty, administration, students, staff. . . . Perhaps there were communications difficulties. . . .But this view of the 'problem' . . . .actively hides, buries, the existence of real conflicts. [I]nstrumental reason converts each dilemma, however genuine, into a mere paradox that can then be unraveled by the application of logic, by calculation."

If the terms and relations identified by instrumental reason, then, fail to resolve the problem, the answer must lie in more communication and more analysis, for this will lead to the correct solution being discovered.

This search for unique solutions neglects the role of choice in human affairs, both by neglecting the choices others make by the values which structure their actions. As Weizenbaum put it, "Instrumental reason can make decisions, but there is all the difference between deciding and choosing." [p. 259]

Not recognizing this distinction can lead to many difficulties in our lives. Many political and social conflicts last indefinitly because opposing sides fail to appreciate the differences in values they hold. Since it is obvious all parties want "peace," "prosperity," and things like "fair trade" and "justice," then if they cannot come to terms, the "problem" mentality would say, more communication is needed. This overlooks the possibility of real differences between the groups.

If this makes for troubled political and social structures, at least we are left with the conflict, having to face the fait accompli that others see things differently. In the social sciences a worse result could occur: unable to fit another culture into the terms and values of the problem-structure, we could deny their humanity in some way. People who did so-and-so, we might say, are so far from us

that certainly they can show us nothing about our lives! And in literature and the other arts an even worse prospect is possible: faced with a story line of people whose lives are so different from ours, we can write off the message the author offers us. This guy, we conclude, has written an unreaslistic work - people could never act like that! Again, nothing to be learned here.

All these results arise from looking for unique solutions to human situations which have been made into problems by a certain kind of thinking. We need to stop looking for solutions and start seeing how different choices lead to different results, and then make choices ourselves for our own lives.

How can we exploit the power of the computer without adopting unprofitable approaches? The computer is a powerful tool, and I've mentioned some ways in which computer studies can yield useful results. The "problem" orientation is also forced upon us by other institutions: schools give tests, publishers must decide what manuscripts to accept, and we must decide what we want to see or read. Can computer-orientated thinking be given a role in these tasks?

My closing suggestion is to point to some of the techniques of analytic philosophy as a way to integrate such thinking into a wider context of thought that includes intuition, insight, and human choices. Analytic philosophers try to determine what terms mean as they are used. For example, we might try to analyze knowledge into justified true belief, and then see whether this definition satisfies all our intuitive uses of the term.

It is this second part of analytic philosophy which is often neglected, and this provides a way to avoid the problems I've outlined here. After the components of a term are made explicit we can apply intuition and values to try to gain some understanding. For example, in looking at other cultures we can look at how people structure their lives, and then break down the elements of those structures,

analyzing them and trying to see the values of that social group. So rather than looking at a family and simply saying, "John and Jane are married," we should see what this amounts to in their value structure. We can then look at our own lives, and reexamine our own values after seeing new possibilties. This might lead to personal or social revolution, but far more likely, I think, is simply a new appreciation of the choices we live by.